

Message

From: ORD_STICS@epa.gov [ORD_STICS@epa.gov]
Sent: 6/8/2020 8:37:43 PM
To: Grimm, Ann [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=5c0a1601435d405699786fa8b4f2c07f-Grimm, Ann]; Hubbard, Carolyn [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=2a93ce3245494318b109e87f7d826284-Hubbard, Carolyn]; Smith, Emily J. [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=3170dc8557cb488285de7652ad162cdd-Smith, Emily J.]; McCord, James [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=McCord, James]; Williams, Joe [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=33145418e7a440259c67db154061dcce-Williams, Joe]; Impellitteri, Christopher [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=a2b830d5f8c64e99aa47f508e871ffd4-Impellitteri, Christopher]; VanDrunick, Suzanne [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=4954f39d5bfa4c16a0ee0f8aed860580-vanDrunick, Suzanne]; Rea, Anne [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=2a892f7ed8084bf6ab57579ae52a4ec7-Rea, Anne]; Strynar, Mark [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=5a9910d5b38e471497bd875fd329a20a-Strynar, Mark]; Washington, John [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=fdc3e8ce9f1d45c4894881ff420ca104-Washington, John]; Latham, Michelle [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=e8f090af107d498b80e359170ebee337-Latham, Michelle]; Penaloza, Amber [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=01691c1169274e69973f7d9233389c9d-Penaloza, A]; Greene, Rick [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=06d2d798bf3841b1b51793d1e6915ed4-Greene, Rick]; Fisher, Bill [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=f26a7eb29ca147f0b604fe36a6200181-Fisher, Bill]
Subject: STICS: Clearance Initiation: #ORD-037481: Emerging Chlorinated Polyfluorinated Ether Compounds Impacting the Waters of New Jersey Identified by Use of Nontargeted Analysis

This e-mail is to inform you that you have been copied on the following clearance submission in STICS:

- **Product type, subtype:** Journal Article, Peer Reviewed
- **Product title:** Emerging Chlorinated Polyfluorinated Ether Compounds Impacting the Waters of New Jersey Identified by Use of Nontargeted Analysis
- **Author(s):** McCord, J.M. Strynar, J. Washington, E. Bergman and S. Goodrow
- **Initiator:** Leeann Mosley, ord/cemm/wecd/mmb
- **ORD Tracking Number:** Tracking # ORD-037481
- **Impact / Purpose Statement:** The overall objectives of this project included a confirmation of ongoing surface and groundwater contamination from current and historical source discharges in NJ, establishing specific PFAS source signatures originating from different industrial sites, and identification of new PFAS using advanced analytical techniques. Non-targeted analysis was applied to water samples collected in southern New Jersey, revealing the existence of a series of novel chlorinated polyfluorinated ether acids and related PFAS species originating from an industrial PFAS manufacturer in the region. Concentrations in ground water were established using PFNA as a spike-in reference and estimates exceeded the state health targets for PFOA/PFNA. 1. Non-targeted analysis was also used to estimate the effectiveness of traditional activated carbon point-of-entry water treatment systems for removal of the emerging species, which was found to reduce the abundance of PFAS species identified in the sampling by >90%. 1. NJ DEP is currently undertaking legal action against Solvay for PFAS releases in the region, acquiring authentic standards for accurate quantification, and requesting toxicity testing

information on the discovered species. This research is of significant relevance to the state of NJ and to the affected local communities.

- **Product Description / Abstract:** Per- and polyfluoroalkyl substances (PFAS) are a widespread, environmentally persistent class of anthropogenic chemicals that are widely used in industrial and consumer products and frequently detected in environmental media. Potential human health impacts from long-term exposure to legacy PFAS resulted in the industrial development and use of numerous replacement species in recent decades. Environmental investigative activities have been crucial in identifying the existence and environmental transport of emerging PFAS in environmental media. Previous investigations an industrially impacted region of southwestern New Jersey has shown consistently elevated levels of legacy PFAS, motivating additional examination by non-targeted mass spectrometry to identify emerging PFAS contamination. This study applied non-targeted analysis to water samples collected in Gloucester and Salem Counties in southwestern New Jersey, revealing the existence of a series of novel chloro-perfluoro-polyether carboxylates and related PFAS species originating from an industrial PFAS user in the region. There is sparse publicly available toxicity information for the emerging chemical species, but estimated concentrations exceeded the state drinking water standards for perfluorooctanoic acid (PFOA) and perfluorononanoic acid (PFNA). Non-targeted analysis was used to estimate the effectiveness of point-of-entry water treatment systems for removal of the emerging species and reduced the abundance of PFAS species by >90%.
- **Tracking and Planning 2019 Forward Field Set**
 - Research Area: SSWR.8 Per- and Poly-Fluorinated Alkyl Substances (PFAS)
 - Product: Non-targeted analytical methods for PFAS
 - Product Description: Currently, EPA analytical methods are only available for a fraction of the PFAS universe. This research will develop a framework and recommendations for the application of non-targeted analysis (NTA) in water samples for use by partners in evaluating PFAS types in water resources. The NTA method could be coupled with targeted analysis to search for potential PFAS types and mixes attributable to specific sources (See Output 26, Product 1 below). The NTA method could also inform the development of expanded/revised existing standard methods for high priority PFAS.
 - Topic(s):
 - Water Treatment and Infrastructure
 - Research Program Area: Safe and Sustainable Water Resources
- **Product Category:** Requires Advance Notification
- **QA form attached in STICS?:** Not Applicable
- **QAPP Reference:** D-EMMD-0031345-QP-1-2
- **Keywords:**
 - CIPFPECA
 - Non-Targeted Analysis
 - Surface Water
 - Mass Spectrometry
 - PFAS
 - New Jersey
- **Journal Name:** Environmental Science & Technology Letters

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